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THE USE  
OF  
PURE WATER.

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## THE USE OF PURE WATER.



Two centuries ago, London was a very large city, although nothing like so large as it is at present. Four hundred and fifty thousand people were then living in it, in tall houses, which were packed very closely together, so that they formed narrow streets.

But no pains were taken at this time to carry away the dirt and waste matter, that necessarily gathered where there was so vast a crowd of living beings. Some little of it was washed down into the river Thames, when it rained; but by far the greater part of it collected in heaps, and lay in all sorts of holes and corners, decaying and putrefying, and filling the air all round with poison-vapours, which no one could see, but which every one was forced to take into his mouth when he opened it. London was then one of the most crowded and dirty, as well as one of the largest cities in the world.

In the year 1665,—that is, nearly two hundred years ago,—a dreadful disease broke out all at once in this crowded and dirty city. People who caught this disease sometimes died in a moment, as if they had been killed by a blow; and hence it was called

“the Plague,” a word taken from an old Greek term, that signified “to strike.”

The Plague struck London so awfully in this sad year, that in a short summer a hundred thousand people, out of its four hundred and fifty thousand inhabitants, died. At one period, a thousand perished every twenty-four hours! A single small parish buried six hundred dead in a week! On the worst night of the pestilence, four thousand human creatures who were living when the sun set, had ceased to breathe before it rose again!

All kinds of business stopped in the city. Most of the inhabitants fled into the open country, the rest shut themselves up in their houses. Carts used to go round every night to gather the dead bodies, and to take them to large holes dug in the ground to receive them. At last the dead bodies were so numerous that the men who went round for them with the carts, ceased to be able to keep an account of their numbers. It is known, however, that in two short months, fifty thousand bodies were buried in this miserable way.

Two hundred thousand people left their houses, and lived in the fields and forests. When these fugitives returned in the autumn, after the pestilence had ceased, and went to look for some of the friends whom they had left behind them, whole families proved to have been so completely swept away, that not a single person bearing their names could be found.

When the hundred thousand people died in London, in the year 1665, men fancied that God had visited

them with death as a punishment. Several individuals ran about the streets nearly naked, crying with a loud voice, "yet forty days and London shall be destroyed." One poor creature was seen rushing about everywhere, and calling out continually, with a voice and face full of horror, "Oh! the great and dreadful God."

These miserable beings, however, were wrong. They were crazy with fear, and uttered words of ignorance and falsehood, and not the words of truth. London was not destroyed in forty days, and the Great God was merciful, and not dreadful. HE had sent them—not the plague, but the fresh air and the pure water, which would have prevented the pestilence, if these blessings had been allowed to do their cleansing and purifying work.

London has now more than five times as many people dwelling in its streets as it had then. There are now in it no less than twenty-one square miles of houses, packed as closely together as they can stand; and in these houses, two millions and a half of human creatures live.

But now, hundreds of miles of channels are cut out under the streets and houses, to carry off waste matters; and millions of gallons of pure water are brought into the houses every day, and poured down these channels. Nearly a tenth part as much pure water as flows down the Thames, is now running through the houses of London continuously, to wash away offensive and decaying substances, along pipes

laid down for the purpose. More than *twenty millions of gallons* of pure water are made to stream through the London houses, every day, by machinery provided for the purpose, besides probably half as much more which is drawn from the pumps and wells. The consequence of all this is that London, with its greatly increased crowd of living beings, and with its much larger production of waste and dirt, is now never visited by any disease so dreadful as that old Plague.

But since the plague never returns now to London, you think, perhaps, it is because the fearful disease has at length worn itself out, and not because London is better kept than it used to be. But how, then, will you account for this fact? There are cities at the present time, in Egypt and in Turkey, which are just in the same filthy and miserable state that London was in, two centuries ago; and in these the plague still breaks out almost every year, sweeping away hundreds of human beings at each visitation.

As recently as the year 1852, a severe disease broke out in a small town close to the outskirts of London, where sixteen thousand people lived; in a very short time, two thousand out of the sixteen thousand became ill, and seventy persons died. A very clever doctor was sent down from London to find out what was the cause of this illness, and he soon discovered that the channels, which ought to have carried away the waste and decaying matters from this town, were choked up, and could not perform their office.

When water was poured down into these channels,



it squeezed up out of them quantities of light and invisible poison-vapour, which had been formed in the channels from the decaying matter. This invisible poison, being forced out before the water, bubbled up back into the houses, and poisoned the air their inhabitants had to breathe. Even when the fresh rain that fell on the house-tops and in the streets, ran down into the channels, it too made the poison-vapour bubble back into the houses.

In a house, where there was a school, in this little town, a tall pipe was carried up from the channel for waste water, higher than the roof, and one of the teachers climbed up and put his face over the end of the pipe, to find if any thing came out from it. He was at once seized with sickness, as if he had been blown upon by the breath of the Plague. But in this town, the clever and wise doctor did not let the people run about the streets, crazy with fear, and attributing the calamity to the anger of God. He showed them what was wrong, and set them to make wrong, right. He had the choked-up channels cleared out and put in order, and plenty of water poured down them to wash away the poisonous filth, and so only one person in every two hundred and thirty, died; instead of one in every five, as was the case in London at the time of the Plague.

The hundred thousand persons who were destroyed in the year of the great plague, in London, were really as much *killed by dirt and ignorance*, as they were by the pestilence.

By severe lessons of this kind, men have been taught that when great crowds of living creatures dwell close together in cities and towns, pipes or channels must be made underground to carry away dirt and waste substances; and that those substances must be constantly driven out through such channels as fast as they are put into them, otherwise more poison-vapours will be poured forth in a narrow space than the fresh air will be able to master and destroy at once. The channels made under houses to receive and carry away dirt and waste, are called "*Sewers*" and "*Drains*."

Now, you, my friend, who live in a town, have a house where sewers and drains of some sort or other have been provided, to carry away decaying poisonous filth; accordingly you throw all waste matters into these drains, and think that is all you have to do, and that you have got rid of them as it was meant you should, and have put them quite beyond the power to do you harm. In this, however, you may be altogether in the wrong; too often you have done nothing of the kind.

Waste matter has no legs, or wheels; it can neither run nor roll away. It will fall *down*, so far as it can get, but it will not *move onwards*, unless driven, or forced to do so. You know very well that if you want a spadeful of earth, or cinders moved, you put a spade or shovel under it, and lift it up, and carry it away.

The waste matters that are put into the sewers and drains, must also be carried away through them.

otherwise having fallen into the drain-pipes, they will go as far down them as they can, and then will lie there choking up the passage, and preventing everything that is added from passing further that way. But you say, how are you to make them pass on if they choose to lie there so obstinately, after you have thrown them in? That is the point to which I want to bring you. There is really no difficulty in the case, if you only see the matter in the right light. Means have been provided, all ready to your hand, if you will but use them as it was meant you should, whereby you may drive away together the danger and the dirt.

The winds which blow over the face of the earth, to keep the air fresh, have had a very powerful help-mate appointed, to aid them in their cleansing labours. **THE RAIN THAT IS POURED DOWN FROM THE SKY IS THE HELPMATE OF THE WINDS IN THEIR PURIFYING WORK.**

When rain falls on the ground, it runs to the lowest places it can find, and makes little rills and rivulets, and so at last flows on into the wide basin of the sea. But as it does this it takes with it all the dirt and decaying matters that lie in its way.

When it rains, God, in his mercy and love, is refreshing and cleansing the air and the ground. We most of us know this very well, but rarely indeed do we think how constant and wonderful the care is that He bestows, while performing this kind service in our behalf.

The quantity of cleansing rain that is poured down

upon the earth from the clouds, in the course of a single year, is so great, that we can hardly imagine how enormous it would seem if collected together. There are some facts, however, which will help to shew how surprisingly vast this quantity is.

All the rivers of the earth are fed by the rain. Rivers, indeed, are nothing but rain which has fallen upon high grounds, and which is hastening along in the channels and grooves which it has hollowed out, towards the great basin of the sea.

The largest river in England runs through London, and is called the Thames. This river is two hundred and twenty miles long, and drains away the rain from six thousand square miles of land. Now, if the river Thames emptied itself into a cistern, instead of into the sea, that cistern would need to have nearly six acres for its bottom, and to be as high as it was broad and long, only to be able to hold as much water as it would receive in twenty-four hours. More than two hundred solid acres of water roll down the Thames, into the sea, every day. Five solid miles of water pour through its channel in a year.

But this great Thames is, after all, nothing more than a little brook, when measured by the side of other rivers. There are one hundred rivers upon the earth larger than the Thames, and some of these very much larger indeed.

There is one river in America that is two thousand miles long, and that pours out into the sea every

twenty-four hours, more water than a cistern half a mile square and half a mile deep could hold.

Another still more mighty American river is nearly five thousand miles long, and pours out, into the sea, as much water in a single day, as the Thames does in a year. This grand old stream was known to the early inhabitants of the land, under the name of the "Father of Rivers."

The Father of Rivers itself, too, is in its turn, only a pigmy, when compared with another American stream which is yet more vast, and which pours out into the sea, through a mouth that is thirty miles wide, as much water in five hours as the Thames does in a year. Its fresh floods rush out into the salt sea, five hundred miles from the shore; and, sometimes, leap up against the opposing currents as a wall of water one hundred feet high, and with a roar that can be heard by sailors many miles away.

Besides these hundreds of great rivers that are always pouring their floods into the sea, day by day, and night by night, there are thousands upon thousands of smaller streams doing exactly the same thing.

If all the water which falls to the ground as rain, in England, in the course of a single year, lay where it fell, instead of flowing off as rivers into the sea, the dry land would be found to be covered up everywhere, to the depth of three feet.

If all the water which falls to the ground, in some parts of America, in the course of a single year, lay where

it fell, it would cover the face of the land, at the end of that time, to the depth of twenty-two feet.

If all the water which falls as rain, in some parts of India, lay where it fell, it would cover the ground to the depth of twenty-four feet in a year.

Thus wonderfully vast is the supply of water God has furnished for the constant washing of the surface of the earth. Now, I would have you seriously ask yourself the question, whether it is at all likely that the Almighty, who has planned the world, and has made everything in it so perfect, has been at the pains to send this great quantity of water for no purpose. I am sure you will at once feel that such cannot be the case, and that pure water must be for some use that is as great as the supply;—that, indeed, like fresh air, it is one of the chief blessings which God has sent, for the benefit of His creatures.

Like all the other blessings that God has given to man, water serves many purposes; but among these the one of cleansing away dangerous filth, is by far the most important. We have seen what has happened when water was prevented from doing its purifying work, where crowds of living beings dwell closely together. It would be of little consequence, that the mists and the rains should clothe the surface of the earth with grass and corn, if deadly plagues were constantly sweeping away the mouths that ought to be fed by the grain.

God, then, sends rain down, abundantly, upon the earth, to wash away decaying matters and dangerous filth, just as He sends the sweeping wind



to carry off and destroy the poison-vapours which are bred of decay; and it is only those covered places which man constructs for his dwellings, that are not thoroughly cleansed by the rain.

You, my friend, who choose to live under a roof, in order that you may preserve a dry skin and dry clothes, must however do, with regard to pure water, precisely what you do with regard to the fresh air. You must bring in, artificially, as much as is required for purposes of cleanliness. God has taken care that the great purifier shall be so plentiful that no human being in civilized lands ever can have any reasonable ground of excuse to offer for not employing it. You say you live in a house which has had no provision made for bringing in a supply of pure water, and that you cannot afford to buy pipes, and have them laid down. But are there no pumps and wells anywhere near? Or, if there be none at a short distance, would it not be better that you should go, even a long distance, and be at the pains to fetch water thence rather than live in filth, at the risk of attack from deadly disease.

Put the case in this way. Suppose that, some day, when you walked into your kitchen, or your bed-room, you found there a deadly viper, rising up on its tail, and opening its horrible jaws, with its poisoned fangs ready to be plunged into your flesh: would you be content to sit down close by, and leave it to perform its murderous work upon your body? Indeed you would not. You would start away from it, and

snatch up the first stick, or poker, you could lay hands on, and you would fight bravely and boldly to destroy it, and get rid of the danger that was threatening you. And yet you are willing to sit down with a viper not a bit less deadly, that is lying in wait for your life; and that is all the more dangerous, because you cannot see it. This viper, if you leave it in occupation of your house, will steal from room to room, and glide up the stairs, and lurk round your pillow, and hide itself in your very bed. In the dark hours of the night, when you are helpless and fast asleep, it will bare its horrid fangs, and plunge them, perhaps, into *your* flesh; perhaps into that of those who are dearest to you; and in the morning, a parching tongue and a burning cheek will show, too late, what has happened, and that the poison is festering in the blood. Yet, how much less trouble you would have to take, to make yourself safe from the attacks of this insidious viper-like foul air, than you would so readily take to rid yourself of the less dangerous enemy that you could see! A few pails of water, brought from the nearest well, every day, and poured down the house-drains, until everything that was dangerous and bad was washed clean away, would effect all that is required.

Remember, then, that sewers cannot carry things away when they are choked up. SEWERS MUST BE KEPT OPEN AND CLEAN BY CONSTANT ATTENTION AND CARE, IF THEY ARE TO DO THE WORK FOR WHICH THEY ARE INTENDED. If they are not kept open



and clear, they do not perform their work, but become actually mischievous, instead of being of service.

Choked-up sewers are mischievous, instead of being serviceable—worse, actually, than no sewers at all—for this reason; they act as reservoirs for large quantities of decaying substance, and also of poison-vapour, which is bred from these. Many persons who are quite incapable of allowing dirt and filth to lie about in their houses, nevertheless, live perfectly contented with a great amount of the same dangerous materials gathered together in pipes just beneath, simply because they cannot see them there. Choked-up sewers are, practically, so many holes, dug into and beneath the floors, for the reception and accommodation of poison; and water-traps, at the entrance of the drain-pipes, afford no protection from the hurtful vapours that are generated in them, because water, being heavier than the vapours, drives them out of the pipes, when it runs in. The expelled vapours cannot get onwards, through the choked sewers, consequently, only one course is left to them. They must rush back into the house, bearing with it disease and death.

What would you, my friend, think of the prudence and wisdom of an acquaintance who dug snug little nests behind the skirting-boards, and beneath the floors of his house, and then filled these with vipers, which, having no possible means of getting away provided for them, must of necessity return inwards, into the rooms of the dwelling, whenever they were

induced to leave their nests! Now, this is precisely what people do, who place refuse substance in drains that are choked up at their outlets. The bubbles which are, from time to time, driven back through the traps, are *poison-bubbles*; they are like venomous vipers stealing forth into the house, from underground nests, where they had been allowed to lurk.

There is a snake in hot countries which is of so deadly a nature, that it kills at once whomsoever it bites. This dangerous snake climbs among the branches of trees, and glides along under the grass, seeking stealthily for its prey; but God has placed some small pieces of loose gristle in its tail, which rattle together whenever it moves, and so give notice that the reptile is near. This deadly snake is thus heard when it cannot be seen, and at once avoided by all living creatures that know what its nature is.

Now, what the rattle in the tail of the rattlesnake is to the creatures that this snake preys upon, a bubbling sound issuing from trapped drain-pipes, or closets, upon water being poured into them, is to the inhabitants of the house; it is an indication of danger. A BUBBLING SOUND AT THE INNER EXTREMITIES OF DRAIN-PIPES, IS A SIGN THAT THOSE PIPES ARE CHOKED UP SOMEWHERE WITHIN, AND NEED TO BE IMMEDIATELY CLEARED. Never rest one minute, when you hear this warning sound, until you have traced the stealthy danger to its hiding-place, and driven it away.

Poison-vapours, however, have no warning rattles,

unless when they enter dwelling-houses in this stealthy way, through trapped drain-pipes. But they nearly always carry about them another mark, which just as surely betrays their presence, if it be duly noticed.

Whenever you go near to a manure heap, or an open cess-pool, do you not observe that an unpleasant smell arises from it? Often this smell is so strong that it at once drives you away. Now, this disagreeable smell is a constant accompaniment of the poison-vapours of putrefaction. It is, indeed, attached to them for the most merciful of reasons; namely, that men may have timely notice of the danger that is lurking near. It is like the rattle of the rattlesnake, having been made sensible to the nose, instead of to the ear.

Men ought always to avoid the threatening smells of putrefaction, as carefully as they do the threatening sounds of the rattlesnake. DISAGREEABLE SMELLS ARE INDICATIONS OF THE PRESENCE OF DANGER. Never allow them to remain in, or near to your dwelling. Never rest for a minute when you perceive them. Hunt them away from your homes, as you would the most venomous reptile that crawls.

When people live in the open country, there is not quite so much need for drains and sewers as there is, in the case of towns, because there are by no means so many individuals crowded together in a given space, and because also, it is then always easy to take waste substances away at once, and deposit them at some distance from the house, where there are no living

creatures to breathe the poison-vapours which steam off from them during their decay.

Still, even in the open country, it is absolutely necessary that decaying matters shall be removed from the neighbourhood of dwellings. If they are cast out just before the doors and windows, and left there, the poison-vapours that they breed, rush into the house every time those doors and windows are opened; and if there be a fire burning within, are sucked in continuously, through chinks and crevices, in the place of pure air.

I chance to know a large parish in the open country, in which there are not more than a thousand people, living in a space some two miles square. The land itself is a high flat heath, over which the wind sweeps with the greatest freedom. But there are now upon it rich fields, full of grass, and corn, and sweet clover, and green turnips. A pleasant stream of pure water runs through the parish one way, and a broad turnpike-road crosses it the other. Near to a handsome church, standing upon the top of a gentle hill, there is a house surrounded by a lawn, over which two fine old chesnut trees extend their seared branches through masses of young foliage; and in this house there lives a clergyman, who thinks of the bodies of his flock as well as their souls, and does all he can to show his parishioners how to value rightly the substantial blessings God has given them. Nature, indeed, seems to have furnished to this place every advantage that is needed for the preservation of health.

But, unfortunately, the cottagers in this parish have taken a perverse fancy into their heads, to make pits close to their doors and windows, into which they throw all the waste and refuse substances of their houses, leaving them to decay and putrefy there as manure. They have, generally, small gardens round their dwellings, but they dig the manure-pits close to their doors, so that they may not have to walk a few yards further when they have anything to throw in. Very often, too, there are pigsties, and even stables for donkeys and ponies, by the sides of the manure-pits. The immediate consequence of all this is, that when any one walks in among these cottages, he finds his nose offended, directly, by all kinds of foul smells. The people, themselves, get so used to these smells, that they do not appear to mind them. Sometimes, indeed, they seem to have been trained by custom, rather to like them than otherwise.

But there is also another consequence which follows in the company of these smells: the parish is, commonly, not free from infectious fever, for months at a time. I have seen this horrible disease again and again, stalk slowly through the parish, occupying months, and even years, by its progress; *passing by clean and well-kept cottages*, but stopping at every one, where there were manure-pits and pigsties, and seizing from them victims, sometimes two and three, and sometimes more. I have known the fever to cling, for months, to the same dwelling, until manure-pits close by, were removed, either from their owners being at length

convinced of their hurtfulness, or because the clergyman, or the parish and medical officers interfered; and I have then been an eye-witness to the fact, that the sick people almost directly got out of their beds, and in a few days, became quite well. I have known as many as twenty people die in the course of two months, in one small spot, in the parish where the holders of the houses were obstinate, and refused to part with their manure-pits. I remember a cottage, in particular, in which a labourer lived with his wife and five children. I went into this cottage one hot autumnal afternoon, when there was fever prowling near, to tell the poor man that his cottage was not fit even for a dog, or a pig to reside in, on account of the foul matters that were collected, both in front and behind. Three weeks afterwards I was in the house again. The man was then away, in the fields, at his work; but his wife and four children were sick in bed, in two little, close, and badly ventilated chambers; the fifth child, a young girl, being alone left to nurse them. In two more weeks I was there once more; the girl who had been the nurse, was then herself ill in bed, with the fever, and she and her father were all that remained of the family of seven. Her mother and four brothers and sisters were all asleep beneath the sod of the churchyard. This sad instance I witnessed myself, but it is very far from being a solitary one, in this great country, which ought to be so free from sickness, favoured as it is by Providence, in all that gives value to life. Thousands upon thousands of people die in England, in the same way,



every year, poisoned through their own folly and ignorance.

Cases of this kind prove, that although the danger is less in open and thinly peopled country places, than it is in crowded towns, there is, nevertheless, great reason why even there pure water and fresh air should be allowed to perform their proper work of removing waste substance, and destroying poison-vapours. If you have any country friends with whom you can talk these matters over, tell them that the best thing they can do in order to escape entirely from the risk of such deadly sickness as infectious fever, is always to carry all waste and refuse substances to some distance from the house, every day, and bury them there, beneath the loose soil, mixed with a little quick lime, if they can procure it; then the poison-vapours, instead of being steamed out into the air, are sucked in and fixed by the soil and the lime, as fast as they are formed, until the rain comes to wash them away, through rivulets and rivers, to the sea, or to convey them to the rootlets of living plants, which are able at once to consume them; changing them from poison into nourishment as they do so.

There is another piece of advice, too, which you may give to both your country and your town friends; and which you may also, advantageously, share with them yourself. **ACQUIRE THE HABIT OF BEING ALWAYS PERFECTLY CLEAN.** Sweep away dust, and wash away dirt and filth, day after day, and week after week. Make no truce with them, for they are uncompromising enemies. If you do not remove them

entirely, they will punish you for your forbearance. It is quite true, that a little dirt does not do a great deal of harm; but it is also true, that people who do not mind a little dirt commonly get to bear a great deal of it. It is a very troublesome thing to be always trying to be a little clean. But it is a very easy thing to be always quite clean. People who have once learned the habit of cleanliness, carry it with them for ever afterwards, without being conscious even that they are doing so.

It is a very good plan for persons who have learned the value of thorough cleanliness, to go about, near to, and in their houses, in the cool of the evening; observing carefully, whether there are then any disagreeable smells which can be perceived. Very often UNPLEASANT ODOURS CAN BE DETECTED IN THE CHILL DAMP EVENING, in places which are entirely free from scents during the day.

So long as the warm sun is shining, it raises any poison-vapours that are in the act of being bred there, rapidly into the air, and scatters them freely. But when the sun has set, and the atmosphere has become cold and moist, the poison-vapours get entangled in the moisture, and float with it along the ground until they are dense and strong enough to be discovered by the nose.

But I have now something more to tell you, concerning the use of pure water, which, probably, will surprise you very much.

The house which is built of mortar and bricks and of tiles and boards, is not the only house that you

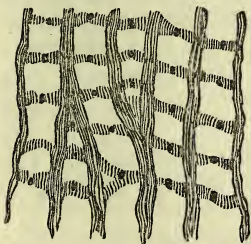


are expected to keep in order and wash out; that house is, after all, merely an outer case added to what is more properly, *your dwelling*.

Look at that body which is made up so wonderfully of flesh and bones, and which has such mysterious powers of moving and feeling; *that*, after all, is really your dwelling. It is in that body that you live, with high duties to perform, and high privileges to enjoy.

But the Great Landlord who has provided for you this comfortable dwelling, very naturally expects also that at least you shall keep it clean, so long as you occupy it; and in order that you may have no shadow of an excuse left you to do otherwise, he has furnished it with a very convenient series of outlets through which waste matters may be poured away.

The outside of your body is covered evenly over, with a soft, shining coat, which is called *the skin*. This skin looks to the eye as if it were a continued, unbroken covering, but it is not so, it is really full of little holes.

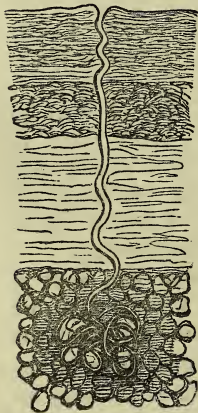


Suppose that I were to show you a small patch of this skin with a strong magnifying glass, you would see very much what is represented in this drawing.

You would find that it is marked with ridges and furrows, and that upon the ridges, round holes are dotted along in lines; these holes are so small that in some places as many as

three thousand of them are packed together upon a space not larger than the surface of a shilling, although separated from each other in the proportion represented in the drawing.

Now suppose, again, that I were to cut down into a piece of skin to see where these holes led to, what do you think we should discover? Why, that they led into little pipes which dip in through the skin, and are then rolled up into knotted balls. Each hole, in fact, is merely the opening or mouth of a pipe. In the drawing beneath, a greatly magnified plan is presented, of one of these pipes. It is observed beginning by the open mouth above, winding like a cork screw, downwards, through the substance of the skin, and then rolling up on itself, in the midst of the loose fat beneath.



Now how many of these little open-mouthed tubes do you think you have in the skin of your body? Should you wonder to hear that you have as many as there are hours in a long year? Oh! you have many more than that; it would take you six long years to count them, if you reckoned one every minute. You have three millions of holes in your skin!

But, again, how far do you think the three millions of tubes, running in from these holes,

would reach, if they were all joined together and stretched out in a line? Positively not less than twenty-eight miles!

You will readily admit that three millions of holes and twenty-eight miles of pipes, are not likely to have been placed in the skin of a single body, without a purpose; what purpose, then do they serve? Why, they are DRAINS AND SEWERS WHICH THE GREAT BUILDER, WHO MADE THIS HOUSE FOR YOU TO DWELL IN, HAS FURNISHED for carrying waste matter away from it.

So long as the body is in a healthy state, water pours out freely through these holes in the skin. This water is not generally seen, because it flies off into the air, as steam. But there is a large quantity of it; never less than one pint is poured out during twenty-four hours, and often as much as four pints.

But the water which pours out of the body through the holes in the skin, is not pure water; it is dirty water, containing a great deal of decaying and poisonous waste matter. As water passes through the living body, it washes out all the hollows and chambers it runs through, and cleanses them, carrying away useless and offensive substances.

The dirty water that pours out through the holes in the skin, is called *perspiration*, or *sweat*. The greater part of the bulk of this perspiration, is water; but not less than a quarter of an ounce of decaying solid substance is mingled with the quantity that flows away in twenty-four hours. As decaying substance is poisonous, it

therefore follows that *a quarter of an ounce of poison is drained away* from the body through the sewers of the skin, every day.

But with a skin thus formed, suppose you go on eating and drinking and working, day after day, and take no care of these pipes and holes, what do you think will happen? Why the same thing that would take place with house-drains under the same circumstances. The little pipes will get choked up, and poisonous matter will collect more and more inside of the body, until fever and derangement will be caused by its presence in the blood.

It is only the water of the perspiration that can fly off into the air, as steam; the thicker decaying substance that was mingled with it, is left behind on the surface of the skin, and is there mixed up with all sorts of dust and dirt that fall on it, until a kind of *filthy varnish* is formed, which chokes up and closes all the little sewers.

How then should you get rid of this dirty varnish, and open the mouths of these sewers, so that they may go on properly, pouring out their waste substance? Clearly by *washing the skin* well with pure water, at frequent intervals.

**DIRTY SKINS HELP FOUL AIR IN ITS MISCHIEVOUS WORK.** They keep poisonous matter inside of the body, and in the blood, which needs, for the health's sake, to be constantly got rid of. **CLEAN SKINS HELP FRESH AIR IN ITS HEALTH-PRESERVING WORK.**

The entire body, from head to foot, *needs* to be

carefully washed with pure water, at least twice in the week. It is far *better that it should be so washed once every day*, and the best time for doing this is on first getting out of bed in the morning.

You tell me that you have a great deal to do, and that you cannot afford the time which this would require. My answer to you is, that you can better afford that time than you can the loss, which want of cleanliness is very likely to bring. It would take you about five minutes at the outside, to wash yourself thoroughly every morning. Now how many such five minutes are there in every day? Not less than 288! Is it not worth while to take one of those 288 from sleep; or from any other occupation, to make sure that the three million outlets God placed in your skin to afford an escape for poison out of your blood, are open and clear, and performing their beneficial work?

The most pleasant and ready way in which the daily washing of the body can be performed, is to sit in a sort of tub, containing half a pailful of cold water, and to splash this over the skin by means of a piece of sponge, or a piece of flannel, rubbing the surface well all over, and afterwards drying it quickly with a coarse towel.

A BATH OF COLD WATER IN THE MORNING, DIRECTLY ON GETTING OUT OF BED, IS REFRESHING AND STRENGTHENING, BESIDES BEING ESSENTIAL TO CLEANLINESS. It brings a warm glow to the skin, encouraging the free flow of blood through its vessels, and guards against the risk of taking cold from accidental

exposure during the day. Even in the coldest weather of winter time, people feel much warmer when they wash all over with cold water before they dress, than they do when they huddle their clothes on as fast as they can upon an unwashed skin. No one who has once tried the plan of washing thoroughly every morning, will ever again desert it. He will go on with it if it be only for the pleasure and delight that he finds in the practice.

But you say, you do not think you can manage to get a tub that you could use for this purpose: that I doubt very much. In these matters I am quite sure that WHERE THERE IS A WILL THERE IS A WAY. I believe that all you need is to be made aware of how important the thing is, and that then you will certainly find a way to do it. But even if it be true that in consequence of some peculiar difficulties in your position, you cannot manage the bathing upon this agreeable plan; you may then, nevertheless, accomplish all that cleanliness actually requires by the help of a couple of old towels, and a couple of pints of water. The skin may be first thoroughly washed with the wet towel, and afterwards be rubbed with the dry one. At any rate, this you must quite understand,—there is no possible escape from the necessity. Nature has ordained that certain things shall be done, and what nature has ordained, must be accomplished, or the penalty of folly and disobedience must be paid. HE WHO CHOOSES DIRT AND LAZINESS IN PREFERENCE TO CLEANLINESS AND WELL-ORDERED EXERTION, MUST



TAKE DISEASE AND MISERY, AND POSSIBLY EVEN DEATH TOO, INTO THE BARGAIN. Never forget that the slight self-denial which refrains from purchasing a few pints of unnecessary beer, is amply sufficient for providing such a necessary and luxury as a morning bath of pure water, for the rest of a long life.

Some portion of the impurities of the perspiration is soaked up into the linen that is worn next the skin. If the same linen be worn day after day, these impurities gather in the linen more and more: this is why linen becomes very dirty by constantly wearing it without change. It is of very little use that the skin is duly washed, if it be wrapped round directly afterwards with a fabric whose pores are entirely filled with refuse matter, like that which has just been cleansed away from its surface. IT IS ABSOLUTELY NECESSARY TO HEALTH THAT THE LINEN SHOULD BE CHANGED AND WASHED EVERY FEW DAYS.

When the body is covered up closely at night, by the bed-clothes, the perspiration flows more freely from the warm skin. A portion of this is soaked into the linen worn immediately round the body, but another portion steams into the sheets and blankets. Hence these too require to be sometimes changed and washed. Dirty bed-clothes, like dirty body-linen, keep the body closely wrapped in poison which it was meant it should be freed from. It is a very excellent proceeding always to fold back neatly all the bed-clothes off the bed, upon getting up in the morning, and TO LEAVE BOTH THE CLOTHES AND THE BED

EXPOSED two or three hours with the window of the chamber wide open, so that the fresh wind may blow in freely and disperse any poison-vapours that are lurking about the fibres and in the pores of the clothes. On dry sunny days the BEDS SHOULD BE TAKEN OUT INTO THE OPEN GARDEN OR YARD, if there be one that can be used for the purpose, and should be laid in the bright sun and fresh air, to purify.

Remember, then, that fresh air and pure water are twin sisters, sent down upon earth to work in close compact for human good. Upon the hill-side, in the green valley, and upon the broad plain, they run together in intimate companionship. Beware how you either sever them, or banish them altogether from your dwelling. Only in barren deserts and in deadly fever-haunts, are they ever divided or absent. If you would not have your home a barren desert or a fever-haunt, take care that you find there a warm welcome and good entertainment for this bountiful and gracious pair.





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